

**Appendix F. Species Likely to Benefit from MPAs in the
Central Coast Study Region**

Table F-1. Species Likely to Benefit from the Establishment of MPAs in Central California

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Fish								
Butterfish (Pacific pompano)	30–300	All regions	Coastal pelagic	Coastal pelagic	Schooling species	Planktonic	Unknown	Moderate
Cabazon	0–250	All regions, including islands	Rocky reefs, breakwaters, kelp beds, tide pools, open ocean	Rocky reefs, kelp beds	Eggs adhesive, attach to substrate, often macroalgae	Planktonic	3–4 months	Low
Croaker, white	0–420	All regions; most common from Point Reyes to Mexico border	Near bottom in shallow soft habitat	Soft bottom, primarily nearshore and estuaries	Schooling species; multiple spawning each year; adults in deeper water than juveniles	Planktonic Larvae become epibenthic	Short	Low
Eel, wolf	Intertidal to 600	N, NC, SC	Pelagic	Rocky reefs, kelp beds	Not a true eel; spawns October–February	Planktonic	1–2 months	Moderate
Flounder, starry	Shallow–900	N, NC, SC	Estuaries and bays, nearshore soft bottom	Soft bottom; estuaries and bays to upper slope	Spawns near river mouths and estuaries and bays	Planktonic	25–75 days	Moderate
Greenling, kelp	0–150	N, NC, SC	Rocky reefs, kelp beds	Rocky reefs, kelp beds	Eggs adhere to rocky substrate	Planktonic	Unknown	Moderate
Greenling, rock	Shallow	N, NC	Rocky reefs, kelp beds	Rocky reefs, kelp beds	Eggs adhere to rocky substrate	Planktonic	Unknown	Moderate
Grunion, California	0–60	SC, S	Sandy nearshore areas	Sandy nearshore areas	Deposits eggs on sandy beaches; lack filaments	Planktonic	Low to moderate	Moderate

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Guitarfish, shovelnose	0–50	SC, S	—	Shallow sand, mud, open coast, bays, and estuaries	Live-bearing	Benthic	None	Moderate
Hagfish, Pacific	30–3,096	All regions	—	Soft bottom	Deposits egg cases	—	Unknown	Moderate
Halibut, California	0–300	All regions	Estuaries, shallow open-coast soft bottom	Estuaries and open-coast soft bottom	Distribution influenced by El Niño events	Planktonic	< 30 days	Moderate
Jacksmelt	Shallow	All regions	Kelp and eel grass beds, sandy beaches, harbors	Kelp and eel grass beds, sandy beaches, harbors	Eggs with filaments for attachment to eel grass and shallow algal beds	Planktonic	Low	Moderate
Lingcod	0–1,400	All regions	Rocky reefs, kelp beds, hard bottom, soft bottom	Rocky reefs, kelp beds, hard bottom, soft bottom	Spawns nearshore on rocky reefs; males guard eggs	Planktonic	3 months	High
Lizardfish, California	5–750	SC, S	Primarily soft bottom	Primarily soft bottom	Rests on bottom using pelvic fins	Planktonic	Unknown	Moderate
Midshipman, plainfin	0–1,000	All regions	Soft bottom	Soft bottom; spawns on hard substrate	Eggs deposited on rocks and hard substrate	Planktonic	Unknown	Moderate
Opaleye	0–95	SC, S	Rocky intertidal	Rocky reefs, kelp beds	Regulates kelp growth by grazing	Planktonic	Unknown	Moderate
Prickleback, monkeyface	0–80	N, NC, SC	Rocky intertidal	Rocky reefs, kelp beds	Deposits eggs on rocky substrate	Planktonic	Low	Low

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Prickleback, rock	0–60	N, NC, SC	Rocky intertidal	Rocky reefs, shallow	Deposit eggs on rocky substrate	Planktonic	Low	Low
Queenfish	0–180	SC, S	Soft bottom	Shallow water and sandy bottom; in bays and sloughs	Spawn at night from March to September	Planktonic	Short	Moderate
Ray, bat	0–150	All regions	Shallow soft bottom; bays and estuaries	Shallow sandy and rocky areas, including bays and estuaries; kelp beds	Live-bearing	Miniature adults	None	Moderate
Rockfish, aurora	600–1,800	All regions	Soft bottom	Hard and soft bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, bank	102–810	All regions	Midwater	Midwater over hard bottom, dropoffs	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, black	0–1,200	N, NC, SC	Soft bottom	Rocky reefs, kelp forests	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, black-and-yellow	0–120	NC, SC, S	Shallow rocky reefs	Shallow rocky reefs, kelp forests	Live-bearing	Planktonic	Low to moderate	Low
Rockfish, blackgill	720–1,800 (juveniles < 660)	All regions	Soft bottom	Hard bottom, soft bottom, canyons, steep dropoffs	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, blue	0–300	All regions	Rocky reefs, kelp forests, soft bottom	Rocky reefs, kelp forests	Live-bearing	Planktonic	Moderate	Moderate

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Bocaccio	0–1,050	All regions	Over hard and soft bottom	Midwater over hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, brown	0–420	All regions	Low-relief hard and soft bottom	Low-relief hard and soft bottom	Live-bearing	Planktonic	Low to moderate	Low
Rockfish, calico	60–840	SC, S	Soft bottom	Hard bottom, sand-rock and mud-rock interface	Live-bearing	Planktonic	Moderate	Low
Rockfish, canary	0–900	N, NC, SC	Soft bottom; sand-rock interface	Midwater and near bottom over hard bottom	Live-bearing	Planktonic	Moderate	Moderate to high
Chilipepper	0–1,080	All regions	Soft bottom	Midwater over hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, China	36–420	N, NC, SC	Rocky reefs	Rocky reefs, kelp forests	Live-bearing	Planktonic	Low to moderate	Low
Rockfish, copper	0–600	All regions	Rocky reefs, soft bottom	Rocky reefs, kelp forests	Live-bearing	Planktonic	Moderate	Low
Cowcod	68–1,200	All regions	Soft and hard bottom	Hard bottom, canyons	Live-bearing	Planktonic	Moderate	Low
Rockfish, darkblotched	240–1,800	All regions	Soft bottom	Soft and hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, flag	100–600	SC, S	Rocky reefs	Rocky reefs, canyons	Live-bearing	Planktonic	Moderate	Low
Rockfish, gopher	0–180	NC, SC, S	Rocky reefs	Rocky reefs, kelp forests	Live-bearing	Planktonic	Low to moderate	Low

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Rockfish, grass	0–150	All regions	Shallow rocky reefs	Shallow rocky reefs, kelp forests	Live-bearing	Planktonic	Moderate	Low
Rockfish, greenblotched	200–1,300	SC, S	Soft bottom	Hard and soft bottom, canyons	Live-bearing	Planktonic	Moderate	Low
Rockfish, greenstriped	200–1,320	All regions	Soft bottom	Low-relief hard bottom, soft bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, greenspotted	160–660	NC, SC, S	Soft bottom	Hard bottom, canyons	Live-bearing	Planktonic	Moderate	Low
Rockfish, halfbanded	192–1,320	SC, S	Soft bottom	Low-relief hard and soft bottom, cobble	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, kelp	0–150	NC, SC, S	Kelp forests and rocky reefs	Kelp forests	Live-bearing	Planktonic	Moderate	Low
Rockfish, Olive	0–480	NC, SC, S	Kelp forests, soft bottom	Rocky reefs, kelp forests	Live-bearing	Planktonic	Moderate	Low
Pacific Ocean perch	180–2,100	All regions	Midwater over hard bottom	Midwater over hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, pink	250–1,200	NC, SC, S	Soft bottom	Hard bottom, canyons	Live-bearing	Planktonic	Moderate	Low
Rockfish, pinkrose	325–960	SC, S	Soft bottom	Hard bottom, canyons	Live-bearing	Planktonic	Moderate	Low
Rockfish, quillback	75–900	N, NC	Rocky reefs	Rocky reefs	Live-bearing	Planktonic	Moderate	Low
Rockfish, redbanded	300–1,560	All regions	Soft bottom	Soft and hard bottom	Live-bearing	Planktonic	Moderate	Low

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Rockfish, redstripe	300–1,200	N, NC	Hard bottom	Hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, rosethorn	390–1,800	N, NC, SC	Soft and hard bottom	Hard bottom, canyons	Live-bearing	Planktonic	Moderate	Low
Rockfish, rosy	50–420	All regions	Soft and hard bottom	Hard bottom	Live-bearing	Planktonic	Moderate	Low
Rockfish, sharpchin	300–1,050	All regions	Hard bottom	Hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, shortbelly	0–930	All regions	Midwater over hard bottom	Midwater over hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, speckled	100–1,200	All regions	Hard bottom	Hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, splitnose	700–1,560	All regions	Soft bottom	Hard bottom, canyons	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, squarespot	60–600	All regions	Hard bottom	Hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, starry	80–900	NC, SC, S	Hard bottom	Hard bottom	Live-bearing	Planktonic	Moderate	Low
Rockfish, stripetail	192–1,320	All regions	Soft bottom	Soft and hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, swordspine	250–1,420	NC, SC, S	Soft bottom	Hard bottom, canyons	Live-bearing	Planktonic	Moderate	Low
Rockfish, tiger	200–900	N, NC	Hard bottom	Hard bottom	Live-bearing	Planktonic	Moderate	Low
Rockfish, treefish	0–150	SC, S	Rocky reefs	Rocky reefs, kelp forests	Live-bearing	Planktonic	Moderate	Low

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Rockfish, vermilion	0–900	All regions	Soft and hard bottom	Wide depth range, rocky reefs, kelp forests, canyons	Live-bearing	Planktonic	Moderate	Low
Rockfish, widow	0–1,200	All regions	Midwater over hard bottom	Midwater over hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Rockfish, yelloweye	150–1,200	N, NC, SC	Rocky reefs	Hard bottom, canyons	Live-bearing	Planktonic	Moderate	Low
Rockfish, yellowtail	0–1,800	All regions	Midwater	Midwater over hard bottom	Live-bearing	Planktonic	Moderate	Moderate
Sanddab, Pacific	30–1,800	All regions	Soft bottom	Soft bottom	May spawn twice a year	Planktonic	Unknown	Moderate
Seabass, white	0–400	NC, SC, S; occurs farther north during El Niño events	Sandy areas, estuaries, piers, jetties, kelp beds	Kelp beds, rocky reefs, offshore banks, open ocean	Adults aggregate in spring and summer during spawning	Planktonic	??	High
Shark, brown smoothhound	0–360	All regions	Bays and estuaries	Soft bottom, bays and estuaries, nearshore	Live-bearing	Miniature adults	None	Moderate
Shark, gray smoothhound	0–150	All regions	Bays and estuaries	Soft bottom, bays and estuaries, nearshore	Live-bearing	Miniature adults	None	Moderate
Shark, horn	0–492	S	Rocky reefs, kelp beds	Rocky reefs, kelp beds	Lays egg cases	Miniature adults	None	Moderate

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Shark, Pacific angel	3–600	SC,S	Flat, sandy bottoms	Flat, sandy bottoms; sand channels between reefs	Live-bearing	Miniature adults	None	Moderate
Shark, leopard	0–300	All regions	Enclosed bays and sloughs; kelp beds; shallow sandy areas	Enclosed bays and sloughs; kelp beds; shallow sandy areas near reefs	Aggregates in very shallow water to release young; live-bearing	Miniature adults	None	Moderate
Sheephead, California	0–180	SC, S	Rocky reefs, kelp beds	Rocky reefs, kelp beds	Changes sex from female to male with size	Planktonic	Unknown	Moderate
Skate, big	10–360	N, NC, SC	Soft bottom	Soft bottom, occasionally rocky reefs	Young hatch from eggs in cases	Miniature adults	None	Moderate
Skate, California	60–2,200	All regions	Soft bottom	Soft bottom	Young hatch from eggs in cases	Miniature adults	None	Moderate
Skate, longnose	180–2,040	All regions	Soft bottom	Soft bottom	Young hatch from eggs in cases	Miniature adults	None	Moderate
Smelt, night	0–420	N, NC, SC	Soft bottom	Shallow sandy coastal areas	Spawns in surf zone at night	Planktonic	Low to moderate	Moderate
Smelt, surf	Shallow	N, NC, SC	Soft bottom	Shallow sandy coastal areas	Spawns in surf zone in daytime	Planktonic	Low to moderate	Moderate
Smelt, whitebait	0–180	N, NC, SC	Soft bottom	Shallow sandy coastal areas, bays, and estuaries	Spawn in sandy subtidal areas	Planktonic	Low to moderate	Moderate
Sole, Dover	60–3,000	All regions	Soft bottom, deep water	Soft bottom, deep water	A portion of the stock migrates	Planktonic	At least 1 year	Moderate

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Sole, English	60–1,000	All regions	Soft bottom, shelf	Soft bottom	Migrates, spawns at 200–360 feet	Planktonic	6–10 weeks	Moderate
Sole, petrale	60–1,500	All regions	Soft and hard bottom, shelf	Soft and hard bottom, shelf	Migrates, spawns at 900–1,200 feet	Planktonic	Unknown	Moderate
Sole, rex	60–2,100	All regions	Soft bottom, shelf and slope	Soft bottom, shelf and slope	Spawns at 300–900 feet	Planktonic	At least 1 year	Moderate
Sole, rock	50–1,200	N, NC, SC	Soft and hard bottom, shelf	Soft and hard bottom, shelf	One of few flatfishes found on rocky bottom	Planktonic	Unknown	Moderate
Sole, sand	5–312	N, NC, SC	Soft bottom, nearshore, estuaries	Soft bottom, nearshore	One of few medium to large flatfish found inshore	Planktonic	Unknown	Moderate
Sole, slender	250–1,700	All regions	Soft bottom, shelf and slope	Soft bottom, shelf and slope	Relatively abundant offshore species	Planktonic	Moderate	Moderate
Surfperch, barred	0–240	NC, SC, S	Beaches	Beaches	Bears live, free-swimming young	—	—	Moderate
Surfperch, black	0–130	All regions	Rocky reefs, kelp beds	Rocky reefs, kelp beds	Bears live, free-swimming young	—	—	Moderate
Surfperch, calico	0–30	All regions	Beaches	Beaches	Bears live, free-swimming young	—	—	Moderate
Surfperch, pile	0–240	All regions	Rocky reefs, kelp beds, soft bottom	Rocky reefs, kelp beds, soft bottom	Bears live, free-swimming young	—	—	Moderate
Surfperch, rainbow	0–130	All regions	Rocky reefs, kelp beds	Rocky reefs, kelp beds	Bears live, free-swimming young	—	—	Moderate
Surfperch, redbtail	0–60	N, NC	Beaches	Beaches	Bears live, free-swimming young	—	—	Moderate

Table F-1. Continued

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Surfperch, rubberlip	0–150	All regions	Rocky reefs, kelp beds, soft bottom	Rocky reefs, kelp beds, soft bottom	Bears live, free-swimming young	—	—	Moderate
Surfperch, shiner	0–480	All regions	Estuaries, soft bottom, kelp beds, rocky reefs	Estuaries, soft bottom, kelp beds, rocky reefs	Bears live, free-swimming young	—	—	Moderate to high(?)
Surfperch, striped	0–55	All regions	Rocky reefs, kelp beds	Rocky reefs, kelp beds	Bears live, free-swimming young	—	—	Moderate
Surfperch, walleye	0–60	All regions	Beaches	Beaches	Bears live, free-swimming young	—	—	Moderate
Surfperch, white	0–140	All regions	Rocky reefs, kelp beds, soft bottom	Rocky reefs, kelp beds, soft bottom	Bears live, free-swimming young	—	—	Moderate
Thornyhead, longspine	1,090–5,000	All regions	Deep hard and soft bottom	Deep hard and soft bottom; slope	Lacks swim bladder; may survive after being brought to surface and released; spawns gelatinous floating egg masses	Planktonic	Unknown	Moderate to high
Thornyhead, shortspine	84–5,000+	All regions	Deep hard and soft bottom	Deep hard and soft bottom; slope	Lacks swim bladder; may survive after being brought to surface and released; spawns gelatinous floating egg masses	Planktonic	Unknown	Moderate to high

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Tomcod, Pacific	0–720	N, NC, SC	Unknown	Soft bottom	Broadcast spawners; high fecundity	Planktonic	Unknown	Moderate
Topsmelt	Shallow	All regions	Kelp and eel grass beds, sandy beaches, harbors	Kelp and eel grass beds, sandy beaches, harbors	Spawns in eel grass and algal beds, possibly kelp beds; eggs attach to spawning substrate by adhesive filaments	Planktonic	Low	Moderate
Turbot, C-O	Shallow–966	All regions	Rocky reefs, sand, shelf	Rocky reefs, sand, shelf	One of few flatfishes to occur in kelp beds	Planktonic	Unknown	Moderate
Turbot, curlfin	25–1,146	All regions	Soft bottom	Soft bottom, shelf	Small mouth; difficult to catch with hook-and-line	Planktonic	Unknown	Moderate
Whitefish, ocean	0–300	SC, S	Unknown	Midwater over hard and soft bottom	Responds favorably to El Niño conditions	Planktonic	Unknown	Moderate
Invertebrates								
Crab, box	0–1,800	All regions, including islands	Rocky reefs, submarine canyons	Rocky reefs, submarine canyons	Unknown	Planktonic	Unknown	Unknown
Crab, brown rock	0–300	All regions, including islands	Rocky reefs, kelp beds,	Rocky reefs, kelp beds,	Rock crabs may live 5–6 years	Planktonic	3–4 months	Moderate
Crab, Dungeness	0–750	N, NC, SC	Sand, sand–mud, estuaries	Sand, sand–mud	Larvae may be transported more than 50 miles offshore	Planktonic	105–125 days	Moderate

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Crab, red rock	0–750	All regions, including islands	Rocky reefs, submarine canyons	Rocky reefs, submarine canyons	May co-occur with spot prawns	Planktonic	3–4 months	Moderate
Crab, sand	Intertidal	All regions, including islands	Intertidal, shallow subtidal sand	Intertidal, shallow subtidal sand	Larvae often co-occur with Dungeness crab larvae	Planktonic	Unknown	Low
Prawn, spot	150–1,600	All regions, including islands	Shallower mud, mud–sand, sand/rock, rocky reefs, submarine canyons	Mud, mud–sand, sand/rock, rocky reefs, submarine canyons	Changes sex from male to female during year 4	Planktonic	Unknown	Moderate
Shrimp, ghost and mud (several species)	Intertidal	All regions	Sand, sand/mud, sand/gravel	Sand, sand/mud, sand/gravel	Forms permanent burrows or impermanent tunnels	Planktonic	Unknown	Low
Shrimp, ocean	150–1,200	N, NC, SC: Oregon border to Point Arguello	Green mud, mud–sand	Green mud, mud–sand	Change sex from male to female during year 2	Planktonic	2.5 to 3 months	Moderate
Urchin, purple	0–300	All regions, including islands	Rocky reefs, kelp beds, under canopy of adults	Rocky reefs, kelp beds	Requires high densities for successful spawning	Planktonic	6–8 weeks	Low
Urchin, red	Intertidal to 500	All regions, including islands	Rocky reefs, kelp beds, under canopy of adults	Rocky reefs, kelp beds	Requires high densities for successful spawning	Planktonic	6–8 weeks	Low

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Abalone, black	Intertidal, 0–20	NC, SC, S	Crevices in rocky reefs, kelp beds	Rocky reefs, kelp beds	Susceptible to withering syndrome disease	Planktonic	4–7 days	Low
Abalone, flat	20–70	All regions, including islands	Crevices in rocky reefs, kelp beds	Rocky reefs, kelp beds	Generally a cryptic species	Planktonic	4–7 days	Low
Abalone, pinto	Intertidal to 70	N, NC, SC	Crevices in rocky reefs, kelp beds	Rocky reefs, kelp beds	Commonly found at approximately 4-inch length	Planktonic	4–7 days	Low
Abalone, red	Intertidal to 100	All regions, including islands	Crevices in rocky reefs, kelp beds, boulder outcrops, under canopy of red urchins	Rocky reefs, kelp beds, boulder outcrops	Largest abalone species in the world	Planktonic	4–7 days	Low
Clam, California jackknife	Intertidal to	South, mainland and islands	Sandy mud, estuaries	Sandy mud, estuaries	Occupies a permanent burrow	Planktonic	Unknown	Low
Clam, chione (several species)	Intertidal to 165	South, mainland and islands	Mud, sand, estuaries	Mud, sand, estuaries	Smooth chione subject to habitat loss due to harbor development	Planktonic	Unknown	Low
Clam, littleneck (several species)	Intertidal	All regions, including islands	Cobble beds	Cobble beds	Prized food item	Planktonic	Unknown	Low
Clam, gaper (several species)	Intertidal to 150	All regions	Sand, sand/mud, estuaries	Sand, sand/mud, estuaries	May live to 17 years	Planktonic	???	Low

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Clam, geoduck	0–360	All regions	Sand/mud, estuaries	Sand/mud, estuaries	Individuals may exceed 10 pounds	Planktonic	2 weeks	Low
Clam, Manila	Intertidal	All regions	Sand/mud, estuaries	Sand/mud, estuaries	Introduced from Japan, important recreational species	Planktonic	3 weeks	Low
Clam, Pismo	Intertidal to 80	SC, S	Exposed sand	Exposed sand	Primary prey item of California sea otters	Planktonic	Pelagic phase 2–3 days	Low
Clam, razor	Intertidal and shallow subtidal	N, NC, SC	Exposed sand	Exposed sand	Individuals can bury themselves in 7 seconds	Planktonic	8 weeks	Low
Clam, softshell	Intertidal	N, NC, SC	Mud	Mud	May have been introduced with eastern oyster	Planktonic	Unknown	Low
Clam, Washington (several species)	Intertidal to 100	All regions	Sand/mud, estuaries	Sand/mud, estuaries	Known to concentrate paralytic shellfish poisoning toxin	Planktonic	4 weeks	Low
Cockles	Intertidal to 660	All regions, including islands	Sand, sand/mud, mud, estuaries	Sand, sand/mud, mud, estuaries	One species may live to 16 years	Planktonic	Unknown	Low
Limpets	Intertidal to 100	All regions, including islands	Rocky reefs	Rocky reefs	Some species may live 15 years	Planktonic	Less than 1 week	Low
Mussels (several species)	Intertidal to 130	All regions, including islands	Rocky reefs, pilings	Rocky reefs, pilings	Bio-accumulator of toxins.	Planktonic	1 month	Low

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
Octopus (several species)	Intertidal to 660	All regions, including islands	Rocky reefs, kelp beds, soft bottom	Rocky reefs, kelp beds, soft bottom	Eggs are attached to substrate and brooded by females	Planktonic	1 month or less	Low
Scallop, rock	Intertidal to 100	All regions, including islands	Rocky reefs, pier pilings, rock jetties	Rocky reefs, pier pilings, rock jetties	Intolerant of salinity less than 25 parts per thousand	Planktonic	5 weeks	Low
Sea hare (two species)	0–60	NC, SC, S	Hard and soft bottom, kelp beds	Hard and soft bottom, kelp beds	Large nerve ganglia make them useful for research	Planktonic	4–5 weeks	Low
Sea star (many species)	Intertidal to deepest canyons	All regions, including islands	Rocky reefs, hard bottom, sand	Rocky reefs, hard bottom, sand	Some species adapted to exposure at low tides	Planktonic	Unknown	Low
Snail, moon	Intertidal to 500	All regions, including islands	Soft bottom	Soft bottom	Has aquiferous system of spongy sinuses in foot	Planktonic	2 weeks	Low
Snail, turban (several species)	Intertidal to 250	All regions, including islands	Shallower rocky reefs, kelp beds, including canopy	Rocky reefs, kelp beds, including canopy	Feeds primarily on kelp and coralline algae	Planktonic	Unknown	Low
Worms (polychaetes)	Intertidal to deepest canyons	All regions	Rocky reefs in mussel beds, cobble beds, soft bottom	Rocky reefs in mussel beds, cobble beds, soft bottom	Several species have toothed proboscis	Planktonic	Variable	Low
Algae								
<i>Gelidium</i> sp. (many species)	Intertidal, to 100	All regions, including islands	Rocky reefs	Rocky reefs	May form mats of algal turf	—	—	None

Table F-1. Continued

Species	Primary Depth Range (Feet)	Primary Geographic Range Within State (Using Four Regions)	Habitat Preference—Juveniles	Habitat Preference—Adults	Unique or Significant Life History Characteristics	Larval Type	Larval Duration (Potential Larval Dispersal)	Potential for Adult Dispersal
<i>Gracilaria</i> sp. (many species)	Intertidal to 50	All regions, including islands	Soft bottom	Soft bottom	Used as spawning substrate by herring in SF Bay	—	—	None
<i>Porphyra</i> sp. (many species)	Intertidal to 100	All regions, including islands	Rocky reefs	Rocky reefs	May be common in high-energy surf zones	—	—	None
Sea palm	Intertidal	N, NC, SC	Exposed rocky reefs	Exposed rocky reefs	Individuals can regenerate blades but not stipe	—	—	None
Kelp, giant	20–120	NC, SC, S	On sand and rock substrate	On sand and rock substrate	Fronds may grow up to 24 inches per day	—	—	None
Kelp, bull	10–70	N, NC, SC	On rock or cobble Substrate	On rock or cobble	Found where water temperature is less than 60° F	—	—	None

Notes:

— = Not Applicable